

CLAIMS

We claim:

1. A method of forming a reinforced urethane product comprising the steps of:

providing a reinforcing member formed from a woven fiber material and having a shape generally corresponding to the product;

5 placing the reinforcing member into a mold having an inner wall, wherein an exterior surface of the reinforcing member is placed adjacent to the inner wall of the mold;

supplying an amount of liquid urethane into the mold;

10 forcing the urethane toward the inner wall of the mold such that the urethane penetrates the woven fiber material;

curing the urethane in the mold; and

removing the reinforced urethane product from the mold.

2. The method of claim 1 wherein the reinforcing member is formed from carbon fiber.

3. The method of claim 2 wherein the reinforcing member is braided.

4. The method of claim 1 further comprising the step of applying a sizing compound to the reinforcing member to stiffen the reinforcing member.

5. The method of claim 4 wherein the sizing compound is applied to the reinforcing member prior to insertion of the reinforcing member into the mold.

6. The method of claim 4 wherein the sizing compound is an epoxy resin.

7. The method of claim 1 wherein the step of forcing the urethane toward the inner wall of the mold includes rotating the mold to create a centrifugal force that forces the urethane toward the inner wall of the mold.

8. The method of claim 1 wherein the step of forcing the urethane toward the inner wall of the mold includes supplying a source of positive pressure to the interior of the mold to force the urethane toward the inner wall of the mold.

9. The method of claim 1 wherein the urethane is cured in the mold by heating the exterior of the mold.

10. The method of claim 1 wherein the amount of urethane supplied into the mold creates an inner wear layer having a desired thickness.

11. The method of claim 10 wherein the urethane has a durometer hardness rating between 70-A and 70-D.

12. A method of forming a reinforced pipe section comprising the steps of:

providing a braided sock formed from a woven fiber material;
placing the braided sock into a cylindrical mold having an inner wall,
5 wherein an exterior surface of the braided sock is placed adjacent to the inner wall of the cylindrical mold;
pouring a supply of liquid urethane into the mold;
forcing the urethane outward toward the inner wall of the mold such that the urethane is forced into the woven fibers of the braided sock;

10 curing the urethane in the mold; and
removing the reinforced pipe from the mold.

13. The method of claim 12 wherein the braided sock is formed from carbon fiber.

14. The method of claim 12 wherein the step of forcing the urethane outward toward the inner wall of the mold includes rotating the mold about a horizontal axis to create a centrifugal force that forces both the braided sock and the urethane toward the inner wall of the mold.

15. The method of claim 14 wherein the urethane is cured in the mold by heating the exterior of the mold as the mold is rotated about the horizontal axis.

16. The method of claim 12 wherein the liquid urethane has a durometer hardness rating between 70-A and 70-D.

17. The method of claim 12 further comprising the step of applying a sizing compound to an exterior surface of the braided sock to stiffen the braided sock.

18. The method of claim 17 wherein the sizing compound is applied to the braided sock prior to the insertion of the braided sock into the mold.

19. The method of claim 15 wherein the supply of urethane creates an inner wear layer having a desired thickness.

20. The method of claim 17 further comprising the step of positioning the braided sock over a mandrel prior to applying the sizing compound to the exterior surface of the braided sock.

21. The method of claim 20 further comprising the step of removing the braided sock from the mandrel prior to insertion of the braided sock into the mold.

22. The method of claim 17 wherein the sizing compound is an epoxy solution.